

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at line 19 on page 1 with the following rewritten paragraph.

The circuit pattern is formed by the optical transfer method as described above, and a transfer in a defocus state produces a blurred image, resulting in poor image forming performance. Here, the extent of focus to which a predetermined image forming performance can be maintained is referred to as "depth of focus (DOF)" and is given by the following expression:

Please replace the paragraph beginning at line 6 on page 2 with the following rewritten paragraph.

The occurrence of substrate irregularities was not a serious problem in such semiconductor devices ~~that in which the~~ integration degree is low and substrate irregularities ~~is are~~ smaller than the depth of focus. However, as the fabrication dimension is smaller, the substrate irregularities ~~is have~~ recently become larger than the depth of focus, making it difficult to obtain a predetermined image forming performance.

Please replace the paragraph beginning at line 24 on page 5 with the following rewritten paragraph.

Splitting design data in units of sub-chips facilitates the handling of a tremendous amount of design data. The present inventor has reached a technical idea that the handling of design data can be further facilitated by converting the design data in units of sub-chips to pattern density data of a small scale.

Please replace the paragraph beginning at line 23 on page 6 with the following rewritten paragraph.

The simulator according to the present invention can be implemented by a computer system, and its software can be created with the use of an algorithm of the simulation method according to the present invention.

Please replace the paragraph beginning at line 22 on page 7 with the following rewritten paragraph.

As previously described, in the manufacturing processes of semiconductor devices, the processing such as selective etching and film formation is performed repetitively on a semiconductor substrate, so that in every process, irregularities ~~occurs~~occur on the surface of the semiconductor substrate. One technique of eliminating such substrate irregularities is a CMP process. Therefore, a CMP process is executed every time one process is performed.

Please replace the paragraph beginning at line 3 on page 8 with the following rewritten paragraph.

The height distribution of irregularities on the semiconductor device differs before and after performing a CMP process. The height distribution measuring device ~~20A-20~~ measures a height distribution of irregularities on the semiconductor device before performing a CMP process and ~~that~~then after performing a CMP process, and provides the measured data to the simulator 1.

Please replace the paragraph beginning at line 23 on page 10 with the following rewritten paragraph.

FIG. 5 shows a state that an already fabricated circuit pattern ~~PT-PT1~~ and plurality of circuit patterns PT2 are arrayed on a semiconductor substrate SB. In FIG. 5, region R1 represents the region where the circuit pattern ~~P4-PT1~~ is disposed; region R2 represents the region where the plurality of circuit patterns PT2 are disposed; and region R3 represents the region where no circuit ~~patter-pattern~~ is disposed.

Please replace the paragraph beginning at line 3 on page 11 with the following rewritten paragraph.

In region R1, the circuit pattern PT1 is formed so as to cover the entire region and its pattern density is 100%. In region R2, ~~a~~ 50% of its entire region is covered with the circuit patterns PT2, and its pattern density is 50%. The pattern density of region R3 is 0%.

Please replace the paragraph beginning at line 5 on page 14 with the following rewritten paragraph.

Concretely, when forming a film on a semiconductor substrate (a fabrication object surface) having a certain pattern, the thickness of the film formed is a fitting parameter. There is of course other fitting ~~parameter~~parameters than the thickness of a laminated film.

Please replace the paragraph beginning at line 12 on page 15 with the following rewritten paragraph.

Therefore, the spatial filter removes the components of large space frequency, leaving the components of small space frequency, i.e., the components that ~~is~~are the ~~factor~~factors contributing to the phenomenon having a long correlation distance.

Please replace the paragraph beginning at line 21 on page 17 with the following rewritten paragraph.

This provides the characteristic feature that if process conditions ~~is~~are changed or a new apparatus is added, adjustment may be accomplished merely by making a fine adjustment of parameters.

Please replace the paragraph beginning at line 17 on page 18 with the following rewritten paragraph.

As used herein, the term "height distribution of the under laid layer" denotes the height distribution of the under laid layer of a fabrication pattern to be formed. Specifically, in the manufacturing processes of semiconductor devices, some processes such as selective etching and film formation are repeatedly performed with the use of about 30 types of masks. Accordingly, the semiconductor substrate surface before being subjected to a patterning can be assumed to be flat only at the time of its initial process. In the succeeding processes, some irregularities are already present on the semiconductor substrate surface before performing a patterning. Such irregularities on the semiconductor substrate ~~is~~are defined as a height distribution of an under laid layer.

Please replace the paragraph beginning at line 4 on page 23 with the following rewritten paragraph.

This provides the characteristic feature that if process conditions ~~is~~are changed or a new apparatus is added, adjustment may be accomplished merely by making a fine adjustment of parameters.

Please replace the paragraph beginning at line 19 on page 29 with the following rewritten paragraph.

This provides the characteristic feature that if process conditions ~~is~~are changed or a new apparatus is added, adjustment may be accomplished merely by making a fine adjustment of parameters.

Please replace the paragraph beginning at line 2 on page 34 with the following rewritten paragraph.

This provides the characteristic feature that if process conditions ~~is~~are changed or a new apparatus is added, adjustment may be accomplished merely by making a fine adjustment of parameters.